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Bitumen equipment

The catalogue contains photographs of the products with various options. The options are subject to change depending on the technology process, rules and regulations in effect. Please visit https://globecore.com/contacts and contact us to specify product options.

Introduction

The increased speeds and loads of cargo vehicles on the road present new challenges to reliability and durability of asphalt concrete pavements. New surfaces and designs are being developed to meet these challenges. As a rule, the bitumen materials used as binders are not sufficient to meet the requirements to the strength of road pavements.

This catalogue presents GlobeCore equipment designed for production and storage of high quality binding materials: bitumen emulsion and modified bitumen. These materials can be implemented in various technologies of road construction, maintenance and repair.

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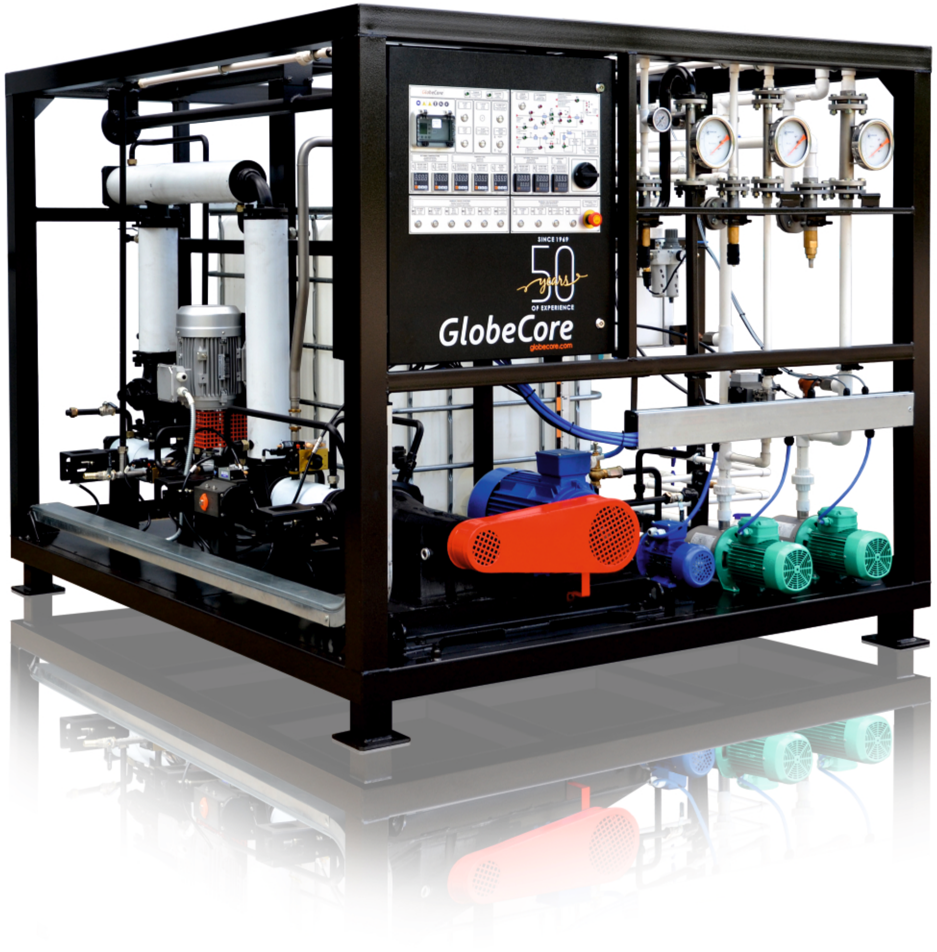
USB-2

USB-2 Bitumen Emulsion Production Unit
2–3 m^3/h (8.8–13.2 gpm)



The USB-2 bitumen emulsion machine is designed for production of anionic and cationic bitumen emulsions.

Bitumen emulsions are used in road construction for tack coating of old road surface before application of asphalt, for production of cold asphalt mix, for surface treatment, to create thin-film protective layers, for patch repairs, as well as in Multimac and Slurry Seal technologies.

The unit can be operated either indoors or outdoors with adequate overhead protection.

low power consumption

exclusive

automation-assisted operation

Parameter	Value
Maximum capacity (including preparation time), m^3/h (gpm)	2-3 (8.8-13.2)*
Bitumen flow rate, m^3/h (gpm)	1.8 (7.9)*
Water flow rate, m^3/h (gpm)	0.6…2 (2.6… 8.8)*
Flux flow rate, dm^3/h (gpm)	0…50 (0… 0.2) *
Flow rate of water-based latex solution (latex adding section — as option), dm^3/h (gpm)	0…72 (0… 0.3)*
Acid flow rate, dm^3/h (gpm)	5…20 (0.02… 0.08) *
Emulsifier flow rate, dm^3/h (gpm)	5…20 (0.02… 0.08) *
Adhesion additive flow rate, dm^3/h (gpm)	1…20 (0.004… 0.08) *
Pressure of bitumen at the unit inlet, Mpa (Psi), (max)	29 (0,2)
Pressure of bitumen fed into the stirrer, Mpa (Psi)	1.4…1.6 (203… 232)
Pressure of water phase fed into the stirrer, Mpa (Psi)	0.2 (29)
Temperature of bitumen at the unit inlet, °C(°F)	140-160 (284-320)
Temperature of water at the unit inlet, °C(°F)	40-60 (104-140) *
Emulsion rise height after the unit, m (in), (max)	15 (590)
Nominal power, kW	18
Voltage of power supply at 60 Hz (three-phase), V	480**
Compressed air pressure, bar (Psi)	4…6 (58-87)
Air flow rate, dm^3/min (gpm)	250 (66)
Dimensions, mm (in) (max): length	2,080 (82)
width	2,340 (92)
height	1,934 (76)
Weight, kg (lbs), (max)	1,200 (2,645)

* - Depends on the bitumen emulsion formula
** - As per customer request

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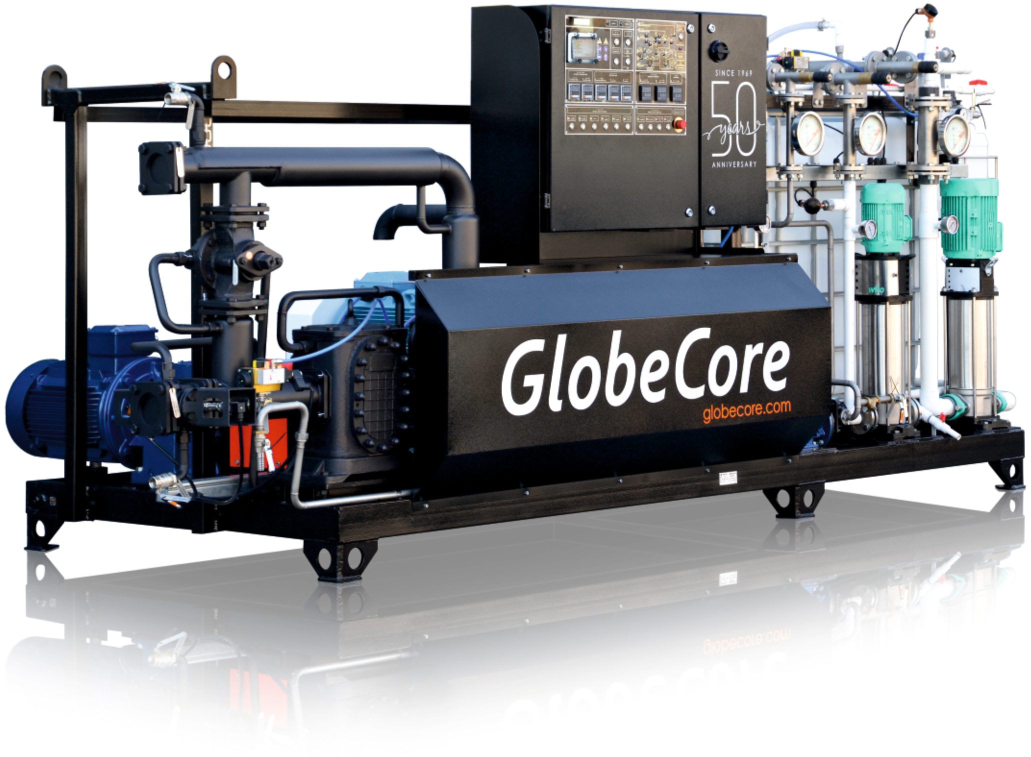
USB-2

USB-2 Bitumen Emulsion Production Unit

4 m^3/h (17.6 gpm) and 8 m^3/h (35.2 gpm)



The reliability of the machine is ensured by advanced high quality components from world-class suppliers:

- Motovario gearbox;
- KTR couplings;
- Wilo pumps;
- GlobeCore flow meters;
- Zipson valves.

Safe operation is facilitated by Wika pressure sensors.

The machine can be installed in anti-vandal or regular container with roll-down doors.

low power consumption

exclusive

automation-assisted operation

Parameter	Value	
Maximum capacity (including preparation time), m^3/h (gpm)	4 (17.6)	8 (35.2)
Bitumen flow rate, m^3/h (gpm)	2.8 (12.3)*	10.5 (46.2)*
Water flow rate, m^3/h (gpm)	1.3-2.8 (5.7-12.3)*	5-7 (22-30.8)*
Flux flow rate, dm^3/h (gpm), (max)	100 (0.44)*	50-250 (0.22-1.1)*
Acid flow rate, dm^3/h(gpm)	25-75 (0.11-0.33)*	50-150 (0.22-0.66)*
Emulsifier flow rate, dm^3/h (gpm)	up to 25 (0.11)*	up to 50 (0.22)*
Adhesion additive flow rate, dm^3/h (gpm)	up to 75 (0.33)*	up to 150 (0.66)*
Latex flow rate, dm^3/h (gpm) (latex adding section — as option)	up to 245 (1.07)*	up to 450 (2.15*)
Pressure of bitumen at the unit inlet, Mpa (Psi)	0.2 (29)	
Pressure of bitumen fed into the stirrer, Mpa (Psi)	0.6 (87)	1.4 (203)
Pressure of water phase fed into the stirrer, Mpa (Psi)	0.2 (29)	
Pressure of water at the unit inlet, Mpa(Psi)	0.1 (14.5)	
Compressed air pressure, Mpa (Psi)	0.45-0.63 (65.2-91.4)	
Compressed air flow rate, L/h (gph)	20-50 (5.3-13.2)	
Temperature of bitumen at the unit inlet, °C (°F)	140-160 (284-320)	
Temperature of water at the unit inlet, °C (°F)	40-60 (104-140)	
Temperature of emulsion at the unit outlet, °C (°F)	90-95 (194-203)	
Emulsion rise height after the unit, m (in), (max)	10 (394)	
Nominal power, kW	20	33
Voltage of power supply at 60 Hz (three-phase),V	480**	
Dimensions for transportation, mm (in), (max) ▪ length	3,800 (150)	4,500 (177)
▪ width	2,220 (87)	2,250 (89)
▪ height	1,650 (65)	1,800 (71)
Weight, kg (lbs), (max)	1,500 (3,307)	1,800 (3,968)

* - Depends on bitumen emulsion formula

** - As per customer request

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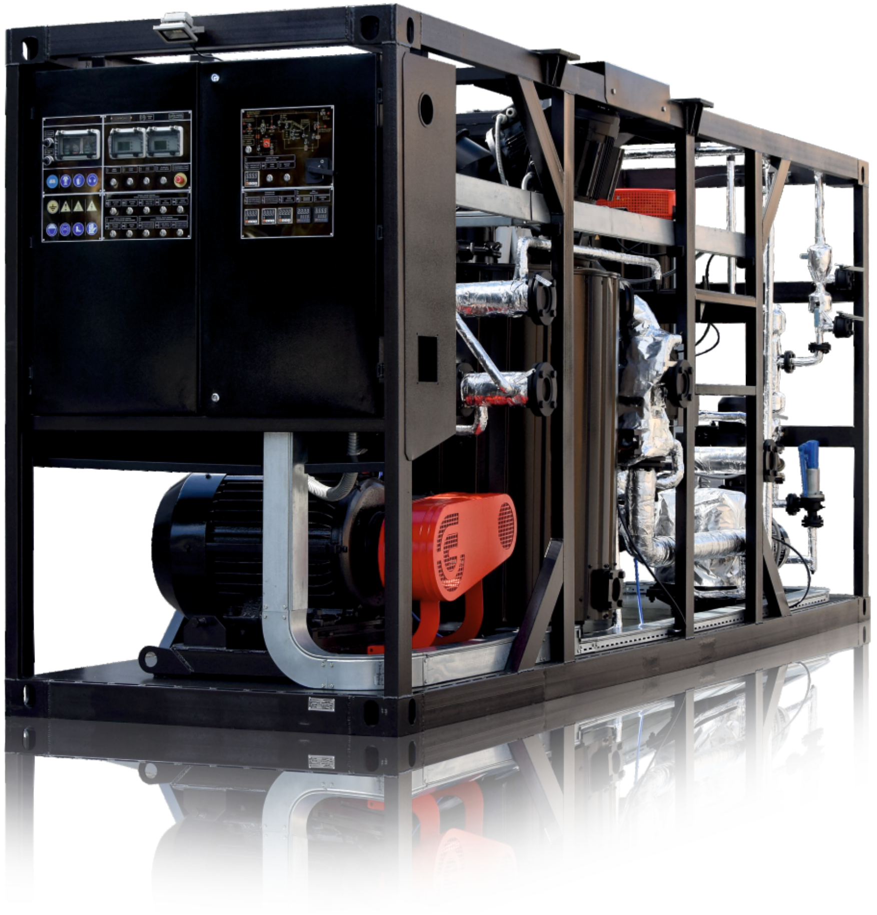
USB-3

USB-3 Continuous Bitumen Modification Unit
8… 12 m^3/h (35.2… 52.8 gpm)



low power consumption

touch panel

automation-assisted operation

The USB-3 machine is designed for modification of bitumen by adding polymers, adhesives and plasticizers. Modified bitumen is used in top layer asphalt, protective layers for concrete surfaces and crack sealant mastics. Using modified bitumen has a number of benefits over regular bitumen by expanding the temperature range of application in various seasons, resisting physical traffic loads (rutting and cracking) and improving road durability.

The machine can run virtually any bitumen modification process with many various modification materials (polymers, wax etc).

Parameter	Value
Capacity for bitumen, m^3/h (gpm), (max)	8… 12 (35.2… 52.8)*
Amount of polymer batched into bitumen, %	1… 5
Amount of plasticizer batched into bitumen, m^3(gal)	0… 1 (0… 264)
Amount of adhesion additive batched into bitumen, L (gal)	0… 100 (0… 26.4)
Nominal power, kW	
▪ mill	75
▪ overall	110
Voltage of power supply at 60 Hz (three-phase), V	480**
Control	electropneumatic
Bitumen temperature, °C (°F), (max)	190 (374)
Thermal oil temperature, °C (°F), (max)	250 (482)
Operational volume of stirrer, m^3 (gal)	0.3 (79.2)
Operational volume of polymer hopper, L (gal)	50 (13.2)
Dimensions, mm (in), (max) length	5,400 (213)
width	1,620 (64)
height	2,650 (104)
Weight, kg (lbs), (max)	3,500 (7,716)

* - Depends on product formula (the amount of added polymer)
** - As per customer reguest

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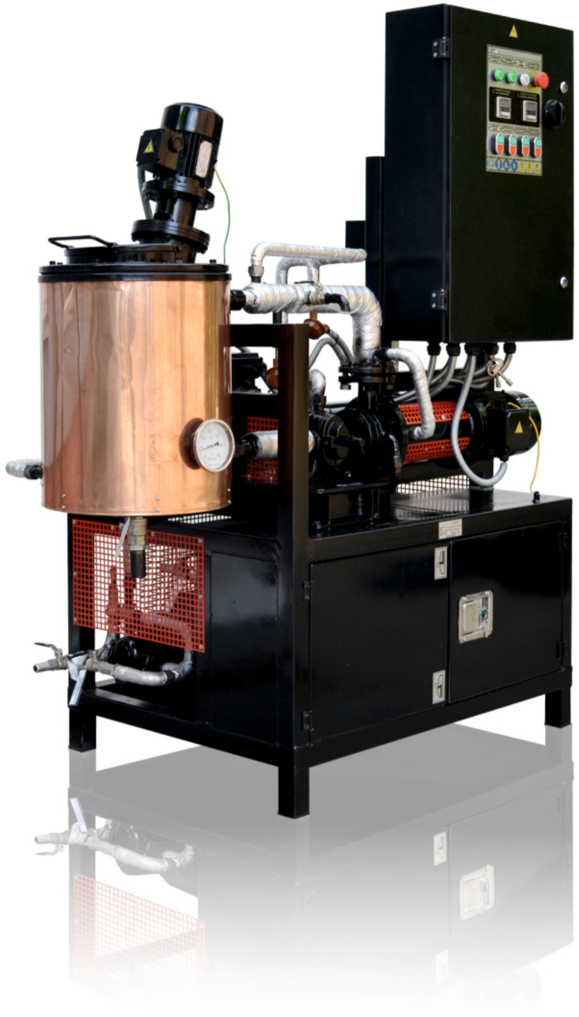
USB-3L

USB-3L Laboratory Bitumen Modification Unit



The laboratory scale USB-3L machine is designed for preparation of small modified bitumen batches max 10 liters (2.6 gal) (per cycle).

Modified bitumen is prepared by inline mixing with simultaneous dispersion of bitumen and polymer in the mill. The design allows for addition of other liquid ingredients.

The machine is intended for the oil refining facilities to perfect the process of bitumen modification by determining the optimal composition of the product, using a batch of modified bitumen as a laboratory sample.

exclusive

versatility (works with different modifiers)

Parameter		Value
Feeding tank volume, L (gal)		24 (6.3)
Minimum volume of bitumen feed into the tank, L (gal)		10 (2.6)
Maximum operating volume of bitumen feed, L (gal)		20 (5.3)
Method of modified bitumen preparation		by dispersion
Capacity of process liquid output pump, L/min (gpm)		30 (7.9)
Maximum temperature for modified bitumen preparation, °C (°F)		180 (356)
Minimum temperature of fed bitumen, °C (°F)		160 (320)
Method of heating the process liquid in the tank and the pipelines		electric heating
Heating power, kW, (max)		1.2
Power circuit voltage at 60 Hz (three-phase), V		480*
Control of the unit		manual
Component control		automation assisted
Maximum power requirement , kW, (max)		6
Dimensions (for transportation), mm (in), max	length	1,175 (46) / 1,175 (46)
	width	845 (33) /775 (31)
	height	1,500 (59)/1,575 (62)
Weight (for transportation), kg (lbs), (max)		320 (705) / 350 (771)

* - As per customer request

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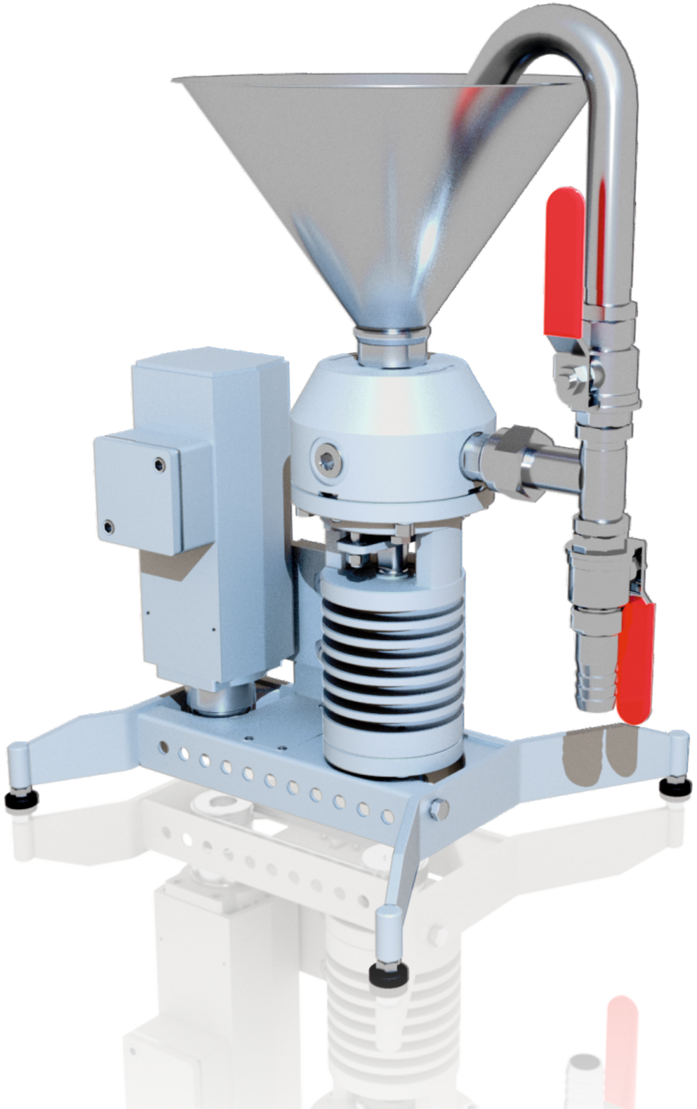
CLM

CLM Laboratory Colloid Mill



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corrosion resistance

capacity adjustment

CLM-0.25.1 colloid mill is designed for homogenization and emulsification of liquid materials (thick slurries of high shear stresses) in a laboratory environment.

CLM-0.25.1 can be used:

- to prepare laboratory batches of bitumen emulsions;
- to select the formula of bitumen emulsion depending on its ratio of ingredients and field of application.

This colloid mill can be supplied as part of USB-2 bitumen emulsion production units, or as a separate unit.

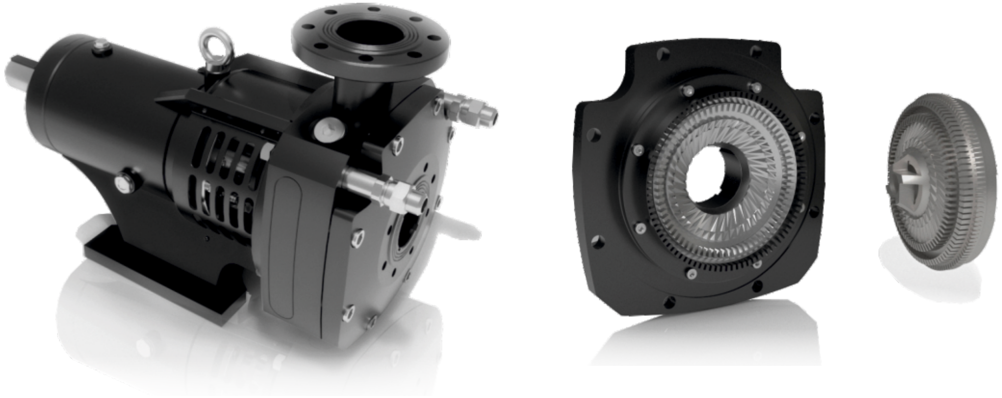
Parameter	Value
Capacity, L/h (gpm), (min)	25 (0.11)*
Fill funnel volume, L (gal)	1.5 (0.4)
Operating temperature, °C (°F), (max)	150 (302)
Knife axial gap, mm (in)	0.25… 1.25 ($9.8 \cdot 10^{-3}$… $4.9 \cdot 10^{-2}$)
Knife radial gap, mm (in)	0.25 ($9.8 \cdot 10^{-3}$)
Knife tip speed, m/s (ips)	50-57 (1,968.5-2,244)**
Rotation speed of mill shaft and electric drive, rpm	16,750-19,250**
Rated power of electric drive, kW	0.7
Voltage of power supply at 60 Hz (three-phase), V	480***
Dimensions in operational position, mm (in), (max) length	340 (13)/425 (17)
width	290 (11)
height	450 (18)
Weight, kg (lbs), (max)	15 (33)

* - Depends on the product viscosity
** - Depends on installation of frequency converter
*** - As per customer request

CLM

CLM Colloid Mills for Bitumen Emulsion and Bitumen Modification Production

CLM-2/4



CLM-10/20

exclusive

non-standard applications

CLM colloid mills are designed for inline homogenization and emulsification of liquid products (thick slurries of high shear stresses), in particular, for production of bitumen emulsions, or homogenization of polymer modified bitumens with the initial polymer particle size max 5 mm (0.2 in).

Colloid mills can be supplied both as part of USB-2 and USB-3 units, and separately without drives, or as a separate component to previously supplied machines.

Parameter		Value	
		Production of bitumen emulsions	Homogenization of polymer modified bitumens
		CLM-2/4	CLM-10/20
Capacity, m^3/h (gpm)		2-4 (8.8-17.6)	10-20 (44-88)
Kinematic viscosity of product, mm^2/s, (in^2/s) (max)		150 (0.23)	
Amount of added polymer (latex), %		2 (latex)	10 (polymer)
Operating temperature,°C (°F), (max)		150 (302)	200 (392)
Operating pressure, bar (Psi), (max)		10 (145)	20 (290)
Type of knives		combination	
Kit of replaceable knives		optional*	
Knife axial gap		preset	adjustable
Minimum knife axial gap, mm (in)		0.5 (0.02)	0.5… 2 (0.02… 0.08)
Knife tip speed, m/s (ips), (min)		45 (147.6)	52 (170.6)
Mill shaft and bearing rotation speed, rpm		6,350	4,500
Motor shaft rotation speed, rpm		2,900	3,000
Lubrication and cooling of mill shaft bearings		oil bath	
Heating of mill		thermal oil	
Nominal power, kW		11	70 (90)**
Voltage of power supply at 60 Hz (three-phase),V		480***	
Dimensions, mm (in), (max)	length	900 (35)	1,200 (47)
	width	580 (23)	1,000 (39)
	height	450 (18)	850 (33)
Weight, kg (lbs), (max)		190 (419)	2,050 (1,984)/ 930 (900)*

* - Supplied as per customer request

** - Depends on the composition of added polymer

*** - As per customer request

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